Amendment Of the Claims:

1. (Previously Presented) In a switching mode converter having a switching transistor and an inductor, a discontinuous mode control circuit comprising:

a discontinuity detector coupled to the inductor that detects when the converter enters the discontinuous mode to generate a TRIP signal, the discontinuity detector determining the portion of a cycle of the switching transistor during which the converter is in discontinuous mode; and

a feedback controller coupled to an output of the converter and to the discontinuity detector, which alters a feedback control signal of the converter responsive to the determined portion of the cycle of the switching transistor during which the converter is in discontinuous mode.

2. (Currently Amended) In a switching mode converter having a switching transistor and an inductor, a discontinuous mode control circuit comprising:

a discontinuity detector coupled to the inductor that detects when the converter enters the discontinuous mode to generate a TRIP signal, the discontinuity detector determining the portion of a cycle of the switching transistor during which the converter is in discontinuous mode; and

a feedback controller coupled to an output of the converter and to the discontinuity detector, which alters a feedback control signal of the converter responsive to the determined portion of the cycle of the switching transistor during which the converter is in discontinuous mode; and

[The switching mode converter of Claim 1] further comprising a freewheeling diode coupled to the inductor to discharge magnetic field energy stored in the inductor when the switching transistor shuts off; and wherein the discontinuity detector comprises a comparator coupled across the freewheeling diode and detecting when voltage across the diode is an appropriate polarity for reverse current flow to generate the TRIP signal.

3. (Currently Amended) The circuit of Claim [1] 2 wherein the discontinuity detector comprises a timing means which starts a timing interval when the inductor enters discontinuous mode and ends the timing interval when the switching transistor is driven to start the next cycle.

4. (Original) The circuit of Claim 3 wherein the timing means comprises a plurality of flip flops connected in series, a clock signal at a frequency higher than a drive frequency for the switching transistor being coupled to the clock input for each flip flop and a data input of the first of the plurality of flip flops receiving the TRIP signal, whereby each time the clock signal transition clocks a flip flop while the TRIP signal is present, the plurality of flip flops will continue to change state.

5. (Original) The circuit of Claim 4 wherein the plurality of flip flops comprises 3 flip flops.

6. (Original) The circuit of Claim 4 wherein the frequency of the clock signal is 4 times the frequency of the drive signal to the switching transistor.

7. (Original) The circuit of Claim 3 further comprising a second timing circuit coupled to an output of the timing means for determining that the switching mode converter remains at a particular level of the discontinuous mode for n cycles, where n = any integer.

8. (Currently Amended) The circuit of Claim [1] 2 further comprising a plurality of flip flops connected in series, a clock signal at a frequency higher than a drive frequency for the switching transistor being coupled to the clock input for each flip flop and a data input of the first of the plurality of flip flops receiving the TRIP signal, whereby each time the clock signal transition clocks a flip flop while the TRIP signal is present, the plurality of flip flops will continue to change state.

9. (Original) The circuit of Claim 8 wherein the plurality of flip flops comprises 3 flip flops.

10. (Original) The circuit of Claim 8 wherein the frequency of the clock signal is 4 times the frequency of the drive signal to the switching transistor.

11. (Original) The circuit of Claim 8 further comprising a second timing circuit coupled to an output of the plurality of flip flops for determining that the switching mode converter remains at a particular level of the discontinuous mode for n cycles, where n = any integer.

12. (Currently Amended) The circuit of Claim [1] 2 wherein the feedback controller is coupled to a voltage divider coupled across an output of the converter for changing an output value of the voltage divider.

13. (Currently Amended) The circuit of Claim [1] 2 wherein the switching mode converter is a buck converter.

14. (Currently Amended) The circuit of Claim [1] 2 wherein the switching mode converter is a boost converter.

15. (Previously Presented) A method for controlling a switching mode converter having a switching transistor and an inductor comprising:

detecting a discontinuous flow of current in the inductor;

measuring the amount of time for discontinuous current flow in the inductor; and

changing the feedback characteristics of the converter in response to the measured amount of time whereby voltage regulation is improved.

16. (Original) The method of Claim 15 further comprising a freewheeling diode coupled to the inductor to discharge magnetic field energy stored in the inductor when the switching transistor shuts off; and wherein the detecting discontinuity comprises detecting when voltage across the freewheeling diode is an appropriate polarity for reverse current flow.

17. (Original) The method of Claim 15 further comprising:

determining that the converter remains in discontinuous mode for n cycles, where n = any integer.

18. (Original) The method of Claim 15 wherein changing the feedback characteristics comprises changing a value of a voltage divider coupled across an output of the converter.

19. (Original) A switching mode converter comprising:

a switching transistor;

an inductor coupled to the switching transistor;

a freewheeling diode coupled to the inductor;

a control circuit and a feedback loop from an output of the converter to the control circuit, the feedback comprising a voltage divider;

a discontinuity detector coupled to the freewheeling diode to determine discontinuous current in the inductor;

a first timing circuit coupled to an output of the discontinuity detector for measuring a portion of a converter cycle during which current in the inductor is discontinuous;

a feedback control circuit coupled to an output of the first timing circuit and responsive thereto to alter a value of the voltage divider.

20. (Original) The converter of Claim 19 further comprising:

a second timing circuit coupled between the output of the first timing circuit and the feedback control circuit, the second timing circuit activating the feedback control circuit to alter the value of the voltage divider only if the output of the first timing circuit is indicative of the converter being at that particular level of discontinuous mode for a predetermined period of time.